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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,153	10/06/2003	Herfried J. Lammer	2418.0773-01	5749

22852 7590 10/21/2004

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EXAMINER

NGUYEN, TAI V

ART UNIT PAPER NUMBER

3729

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,153

Applicant(s)

LAMMER, HERFRIED J.

Examiner

Tai Van Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 14-16 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) 28-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/117,151.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-7 and 14-16) in the reply filed on 9/29/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 28-31 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected 28-31, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/29/2004.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

3. The following title is suggested: A METHOD OF MAKING A PIEZOELECTRIC FILM.

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.**

Extensive mechanical and design details of apparatus should not be given.

5. The abstract of the disclosure is objected to because the abstract is not drawn to the claimed invention, i. e. method. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Banno et al (US 5,259,099).

As applied to claim 1, Banno et al disclose a method of making a piezoelectric film comprising: obtaining a piezoelectric material (11, 12, Fig. 1b); reducing the piezoelectric material to particles (13); and contacting the particles with a flexible matrix material (column 5, lines 1-13).

As applied to claims 2 and 7, Banno et al disclose the piezoelectric material comprises at least one piezoelectric material chosen from lead oxide, zirconium oxide, and titanium oxide (column 6, lines 14-17).

As applied to claim 3, Banno et al disclose further comprising: contacting the particles with an organic binder, the binder comprising at least one organic material (column 5, lines 39-60).

AS applied to claim 4, Banno et al disclose further comprising: sintering the piezoelectric material to make a ceramic material (column 3, lines 63-68).

As applied to claim 6, Banno et la disclose the matrix material comprises at least one flexible material chosen from an epoxy resin (column 2, lines 5-12).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 14-16 and 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banno et al in view of Dai et al (US 5,792,379).

As applied to claims 14 and 5, Banno et al disclose a method of making a piezoelectric film comprising: obtaining a piezoelectric material (11, 12, Fgi. 1b), the piezoelectric material comprising at least one oxide chosen from lead zirconium oxide,

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and titanium oxide (column 6, lines 14-18+); contacting the piezoelectric material with an organic binder (column 5, lines 39-60), the binder comprising at least one organic material chosen from nylon (column 6, lines 18-20); sintering said piezoelectric material to make a ceramic material (column 3, lines 65-68); contacting the particles with a flexible matrix material (column 5, lines 1-13); molding the matrix material onto a surface; and curing said matrix material (column 5, lines 39-60).

However, Banno et al does not teach a milling the ceramic material into particles. Dai et al teach milling ceramic material into particles (column 4, lines 49-59). It would have been an obvious to one of ordinary skill in the art at this time the invention was made to have modified the Banno et al method by milling, as taught by Dai et al, to positively provide better densification at low temperatures (see column 2, lines 35-40).

As applied to claim 15, Banno et al disclose applying electrodes (14, 15, Fig. 1b) to the matrix material.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banno et al in view of Dai et al and further in view of Dixon (US 3,958,161).

Regarding to claim 16, Banno et al as modified by Dai et al, discloses substantially all limitations of the claimed invention above. However, the modified method does not disclose the step polarizing the matrix material with an electromagnetic field. Dixon teaches polarizing the matrix material with an electromagnetic field (see column 4, lines 11-43). It would have been obvious to one of ordinary skill in the art at this time the invention was made to improve the modified

W Banno et al method polarizing the matrix material with an electromagnetic field, as taught by Dixon, to positively provide a reliable method of monitoring polarization of a piezoelectric transducer.

Conclusion

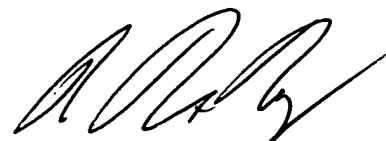
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tai Van Nguyen whose telephone number is 703-308-1791. The examiner can normally be reached on M-F (7:30 A.M - 4:30 P.M).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN.


A. DEXTER TUGBANG
PRIMARY EXAMINER

October 20, 2004